Web Design and Databases
WD: Class 4: HTML and CSS
Part 1

Dr Helen Hastie

Dept of Computer Science

Heriot-Watt University

Before we start: Part 1 due on Friday 23rd January

- Create a mock-up of an easy-to-use website for a game store website.
- You can do this using a mock-up tool such as Balsamiq or any similar tool
- You can get inspiration from other game shop websites but your website should have an original design.
- You will be assessed on the Information Architecture (IA) and the usability of your website so bear this in mind.

Your assignment must contain the following three items:

1. screenshots of your website design (in Balsamiq: right click and Save Image As),
2. description of any design decisions you made,
3. your IA diagram.

For 1. one screenshot is the minimum required, but try to aim for 2-3 screenshots of your website design.

We will be looking for good, well-balanced design (e.g. use of 2/3-1/3 rule) and a theme expressed through visual metaphors, good explanation of design decisions and a well thought through IA.

Each individual student must submit a document through TurnItIn with their group name and the name of the other student in their group.
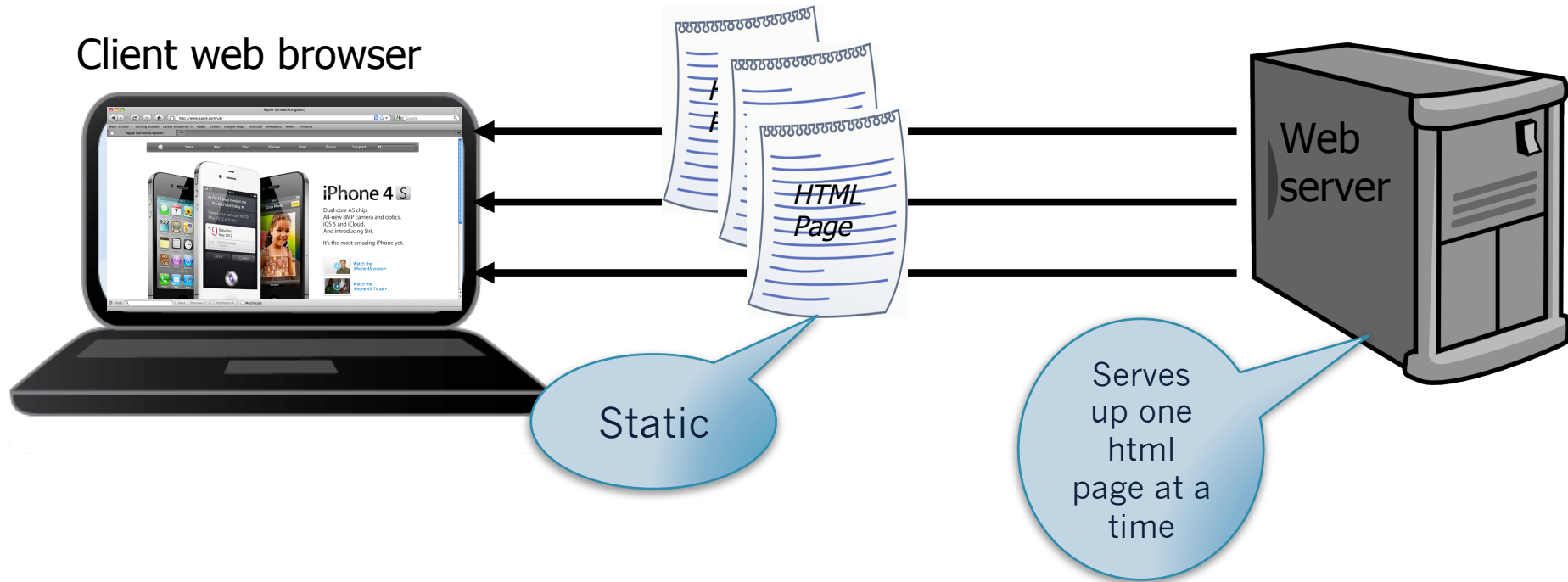
Web Design and Databases: so far

- Pre-production

- Navigation

- Layout

- Writing

- Usability
  - Create a billboard
  - Lots of clicks is ok as long as they are "easy" clicks
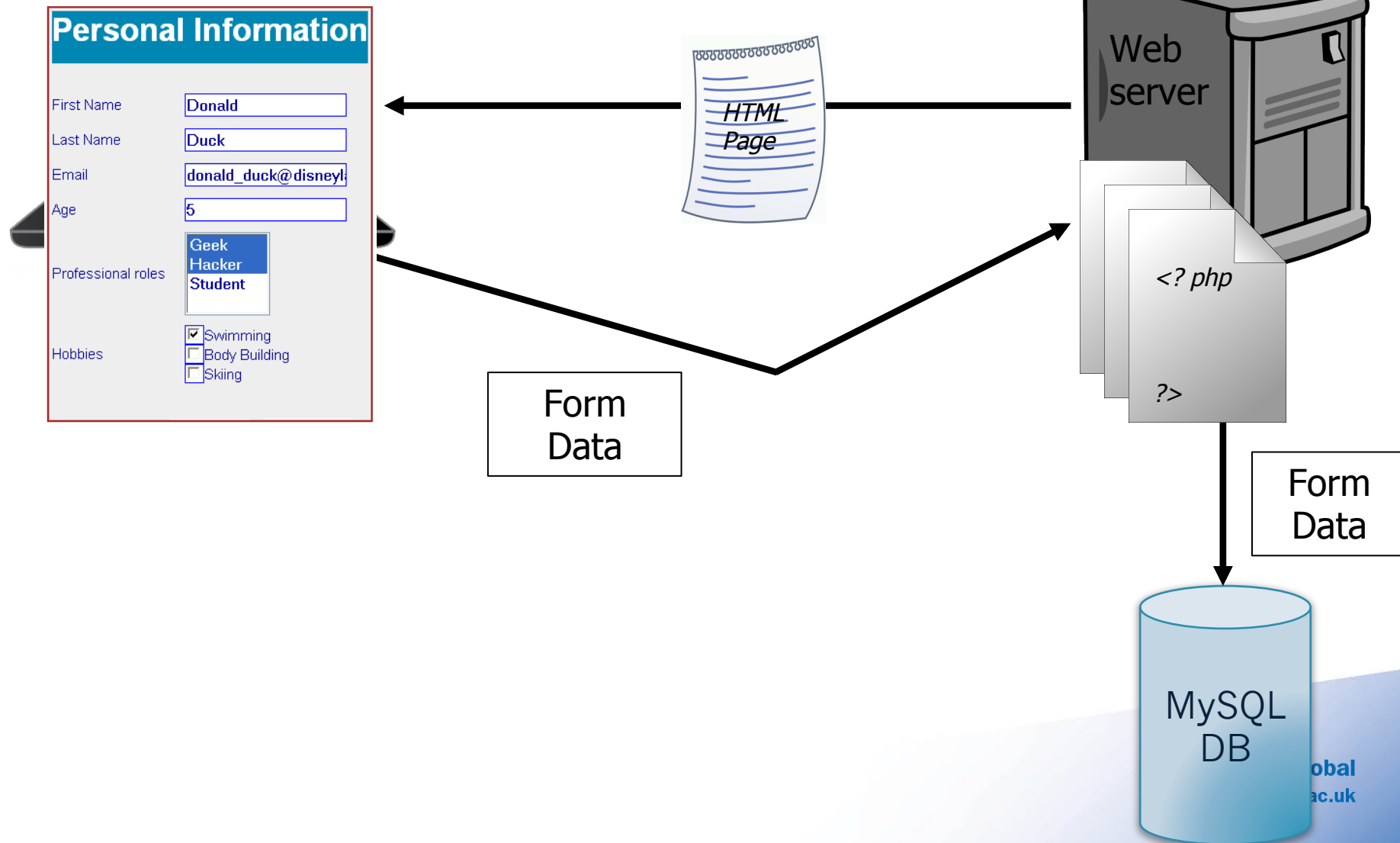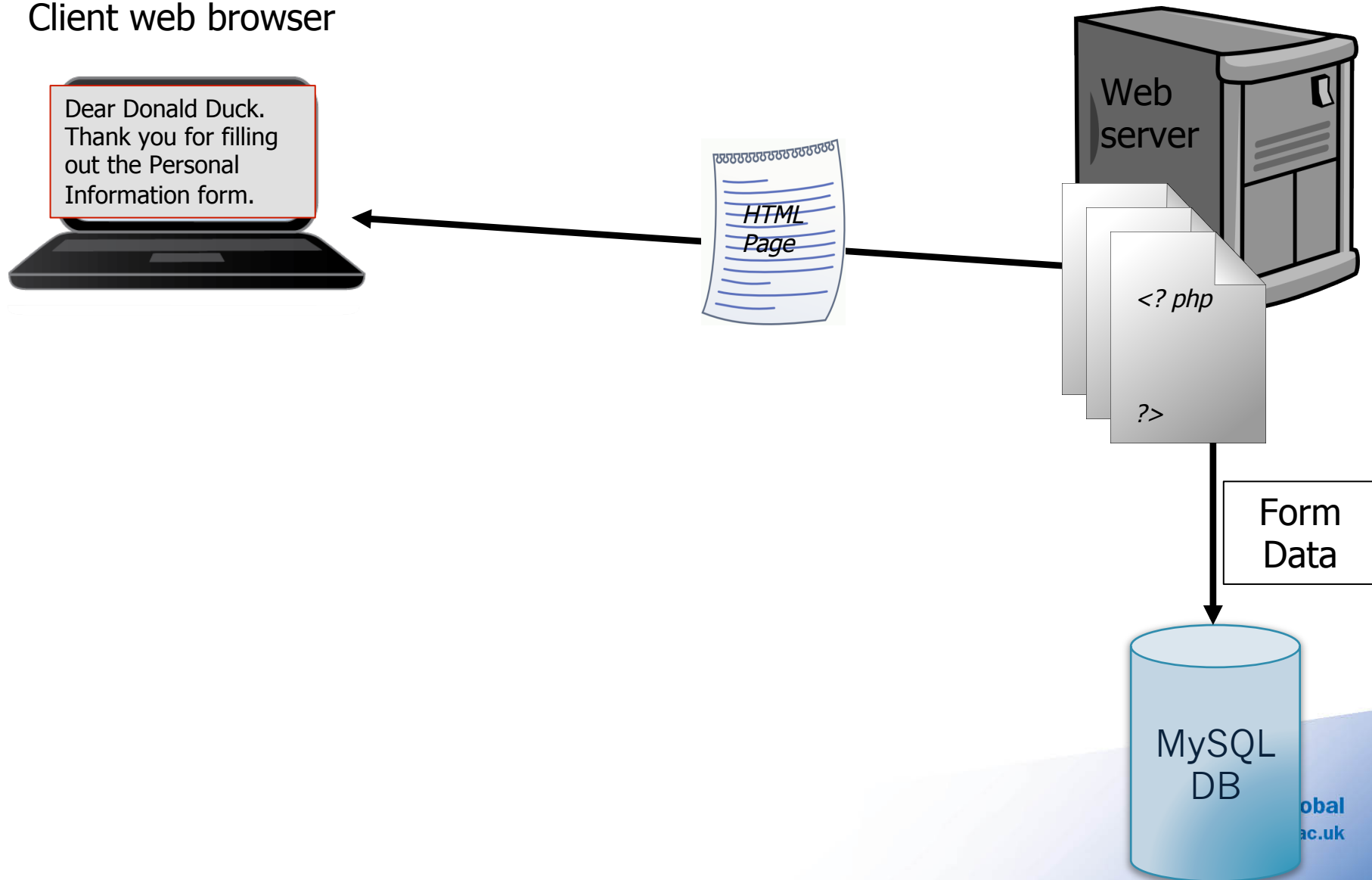 - Make navigation easy

Static HTML

Client web browser

HTML Page

Static

Serves up one html page at a time

Web server

PHP brings web pages to life

Client web browser

Personal Information

First Name	Donald
Last Name	Duck
Email	donald_duck@disneyl:
Age	5
Professional roles	Geek Hacker **Student**
Hobbies	☑ Swimming ☐ Body Building ☐ Skiing

HTML Page

Form Data

Web server

<? php

?>

Form Data

MySQL DB

PHP brings web pages to life

Client web browser

Dear Donald Duck. Thank you for filling out the Personal Information form.

HTML Page

Web server

<? php

?>

Form Data

MySQL DB

PHP brings web pages to life

Client web browser

We've talked about how to make this look good

HTML Page

Today's Class

Web server

<? php

?>

Form Data

MySQL DB

A brief history of HTML

- SGML (Standard Generalized Markup Language)
- Then came HTML
- Followed by the browser…and the great browser wars
  - IE
  - Netscape
  - Opera
  - Mozilla
  - Still others have come and gone

A Brief History of HTML

Rough Timeline of Web Technologies

1991 **HTML**

1994 **HTML 2**

1996 **CSS 1** + **JavaScript**

1997 **HTML 4**

1998 **CSS 2**

2000 **XHTML 1**

2002 **Tableless Web Design**

2005 **AJAX**

2009 **HTML 5**

HTML vs XHTML

- HTML 4 and XHTML 1.0 used in conjunction with CSS2

- HTML5 replaces HTML4 and XHTML 1.0

- HTML5 is now known as **HTML**

- HTML (with CSS3) has new features

  - for playing multimedia and graphical content within web pages - such as <video>, <audio> and <canvas> elements

  - For enriched semantics new elements such as <section>, <article>, <header> and <nav> elements

XHTML/HTML4/HTML5

CONFUSED?

What is XHTML?

- XHTML stands for Extensible Hypertext Markup Language
  - XHTML is a stricter and cleaner version of HTML4

- XML (Extensible Markup Language) is a markup language designed for describing *data*
  - XHTML is HTML redefined as an XML application
  - XHTML is a "bridge" between HTML and XML

HTML vs XHTML

- HTML4
  - case insensitive
  - some tags don't need to be closed
  - self-closing tags don't exist
- XHTML is more strict
  - All tags need to be closed
  - Element names are case sensitive and lower-case
  - Self-closing tags exist, e.g.
- HTML 5
  - Combines HTML and XHTML but is in general more relaxed

HTML5

- HTML5 comes with with lots of flexibility and would support the followings:
  - Case insensitivity.
  - Quotes are optional for attributes.
  - Attribute values are optional.
  - Closing empty elements are optional.

- What you learn is HTML5/CSS3

HTML and Browsers

- Much of the web is not designed with compatibility in mind
- Browsers aim to display any version of HTML, even if it has errors.
- Different browsers with different settings will display a page differently.
- Incorrect HTML may be displayed weirdly or not at all in some browsers.

Standards

- W3C standards enhance accessibility and promise long-term durability.
- The rules take minutes to learn and the benefits are vast.
- http://www.w3schools.com/

Standards

- Tools are available to help:
  - Free online validators help ensure that your HTML and CSS are error free.
- Valid HTML will help your sites work better in more browsers and devices, reaching more people.
- Always aim to write correct HTML, not just HTML that happens to display in your browser nicely.

How do I start?

- Create a file example.html using a text editor
- Save file in your public_html directory
- Look at the file with the browser, e.g.
- www2.macs.hw.ac.uk/~username/example.html

- Special name "index.html" is used for homepage
- E.g. www2.macs.hw.ac.uk/~username

HTML Document- required

<!DOCTYPE html>

<html>

<head>

<title>Title of the document</title>

</head>

<body>

The content of the document......

</body>

</html>

<head>….</head>

- The following can go inside the <head> element:
  - <title> (*this element is required in an HTML document)
  - <meta>
  - <style> - add some css code
  - <link> -link to a file (e.g. CSS)
  - <base> - Specify a default URL and a default target for all links on a page:
  - <script> - add some java script
  - <noscript>- Iternate content for users that have disabled scripts in their browser

Title tag

- The <title> tag is required in all HTML documents and it defines the title of the document.

- The <title> element:
  - defines a title in the browser toolbar and tabs
  - provides a title for the page when it is added to favorites
  - displays a title for the page in search-engine results

HTML Document- optional

```html
<!DOCTYPE html>
<html>
<head>
<title>Title of the document</title>
<meta charset="UTF-8">
<meta name="description" content="Homepage stuff">
<meta name="keywords" content="HTML,CSS,XML,JavaScript">
<meta name="author" content="Joe Blogs">
</head>

<body>
The content of the document......
</body>

</html>
```

HTML: Example

Info on page in **head**

body contains content

```
<html>
<head><title> F27WD </title></head>
<body>
<h1> Welcome </h1>
<p> This is Web Design and Databases
</p>
<h2> Introduction </h2>
On this course you'll learn how to create
<em> cool </em> websites and connect
them to a database.
</body>
</html>
```
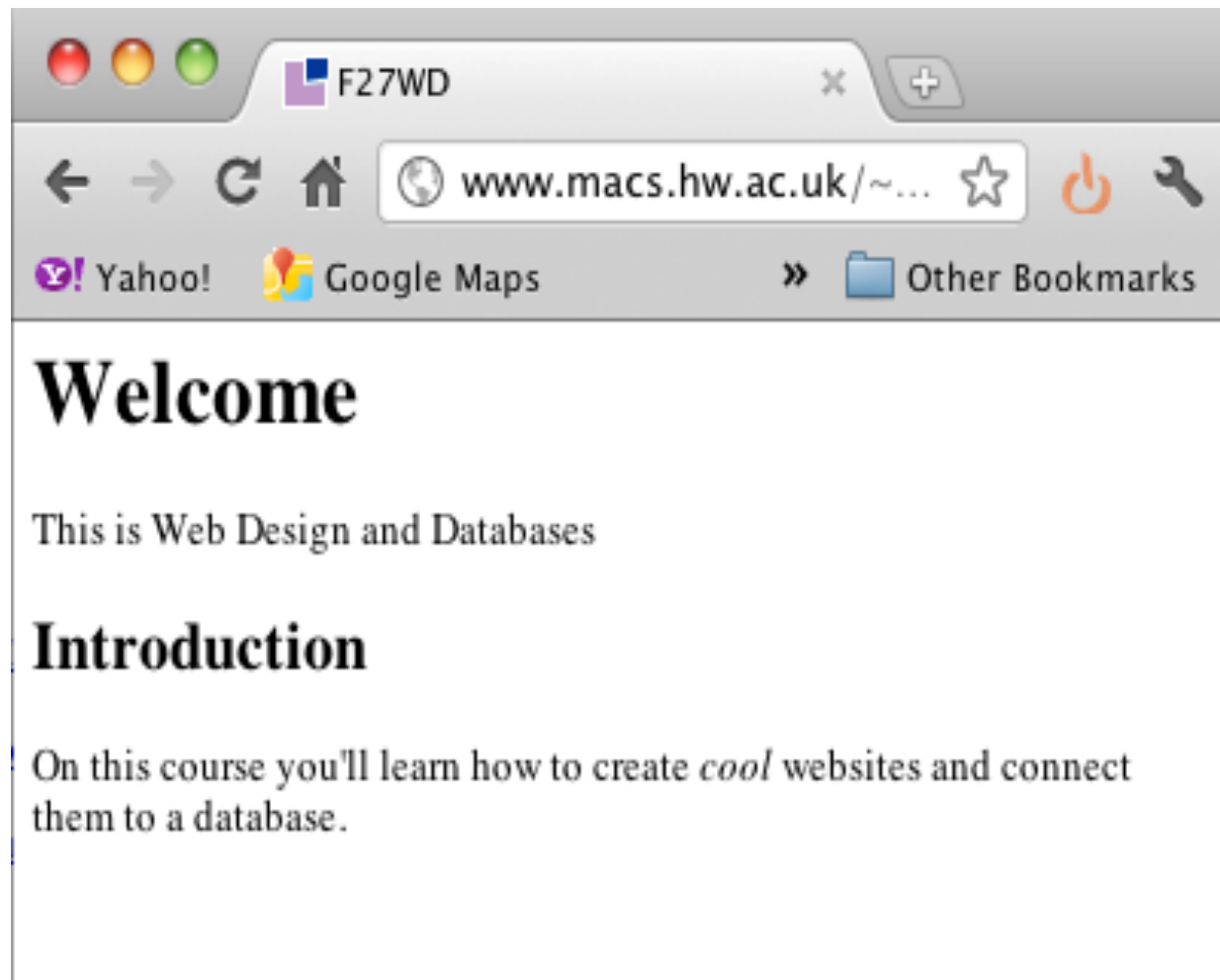
F27WD

www.macs.hw.ac.uk/~...

Yahoo!   Google Maps   »   Other Bookma

Welcome

This is Web Design and Databases

Introduction

On this course you'll learn how to create *cool* websites and connect them to a database.
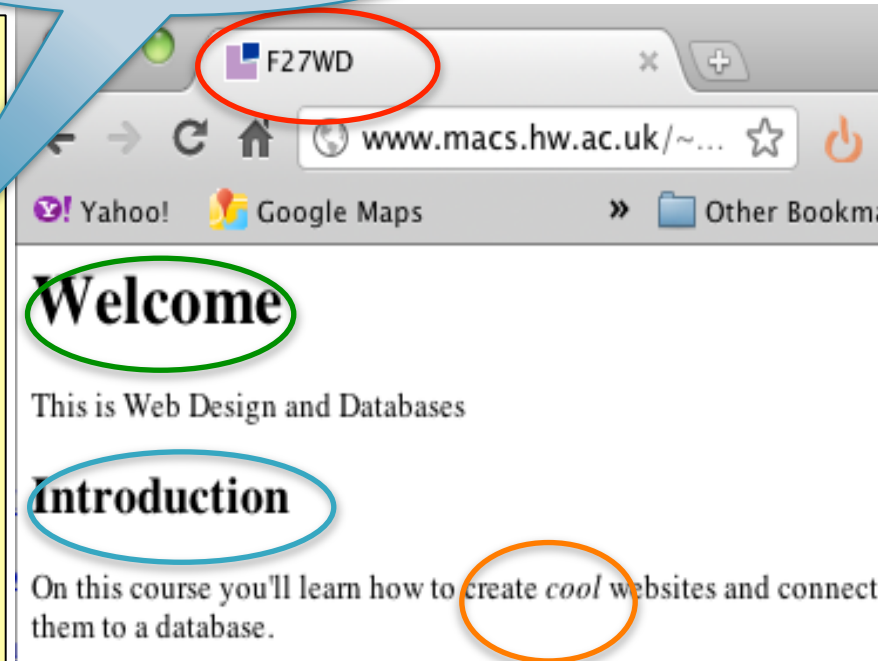
Uses elements:
html   head   title   body   h1   h2   p   em

Hmm… I need some style

HTML with CSS: <style>

Use this in the Head section

CSS is totally different to HTML

```
<html>
<head><title> F27WD </title>
<style >
    body {
  D  background-color: #728FCE;
  C  margin-left: 20%;
  C  margin-right: 20%;
  B  border: 1px dotted gray;
  E  padding: 10px 10px 10px 10px;
  A  font-family: sans-serif;
    }
</style>
</head>
```

A: Defines the font to use for the text
B: Defines border around the body
C: Sets the left and right margins
D: Set the background colour to blue
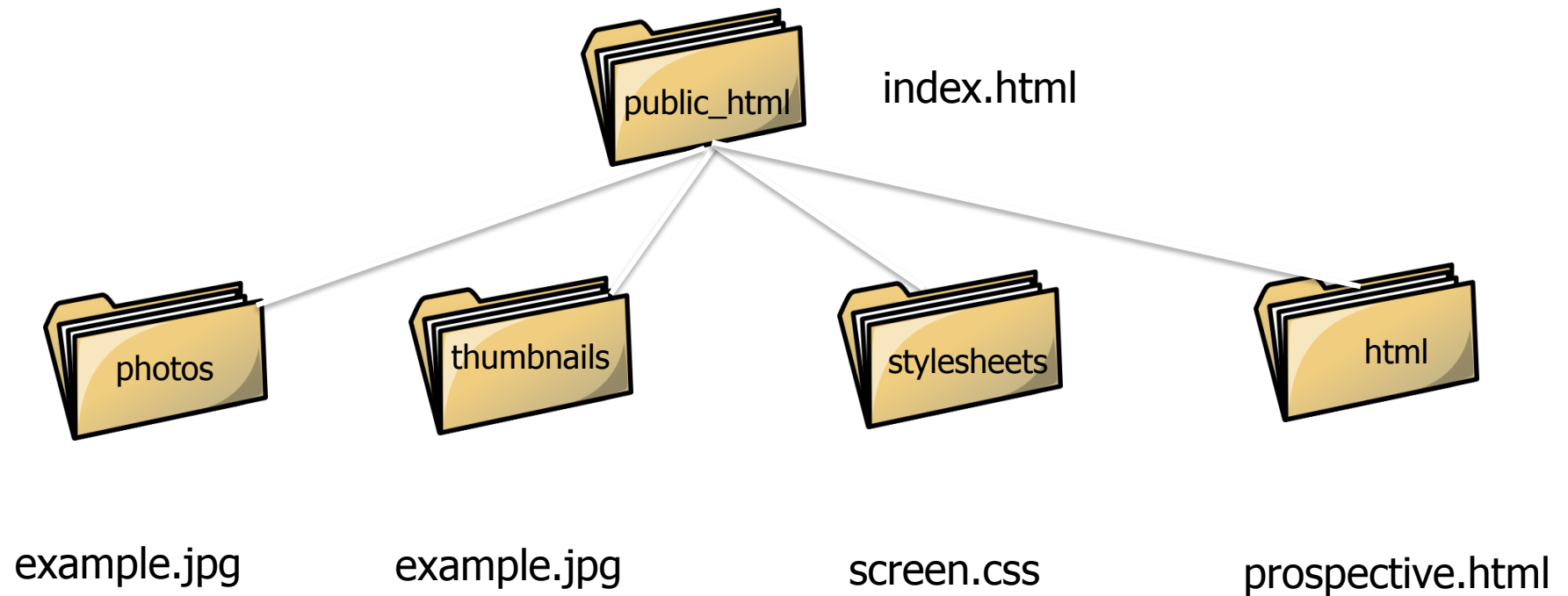E: Creates padding around the body of the page

Welcome

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Introduction

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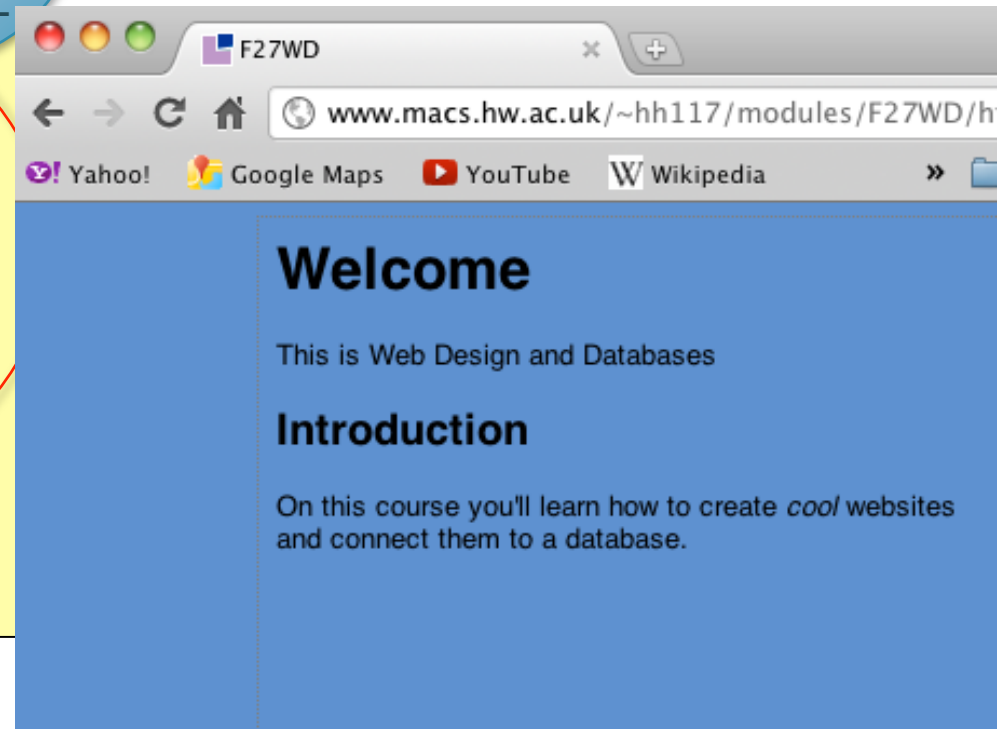
HTML with CSS: <link>

```
<html>
<head><title> F27WD </title>
 <link rel="stylesheet" type="text/css"
href="stylesheets/screen.css" >
</head>
```

F27WD

www.macs.hw.ac.uk/~hh117/modules/F27W

Yahoo!   Google Maps   YouTube   Wikipedia

Welcome

This is Web Design and Databases

Introduction

On this course you'll learn how to create *cool* website
and connect them to a database.

Be organised

public_html   index.html

photos   thumbnails   stylesheets   html

example.jpg   example.jpg   screen.css   prospective.html

URLs: Uniform Resource Locators

- Links to other files are defined using URLs. These define precisely the location of a file, anywhere on the WWW.

- URLs can be relative or absolute.
  - Absolute URLs give the full path to the file.
    ```
    http://www.loc/bit.html
    ```
  - Relative URLs give the location relative to the file containing the URL. This is in the same folder.
    ```
    bit.html
    ```

- URLs are also referred to by the broader term URIs - Uniform Resource Indicators

Graphics and links

```
<body>
<img src="images/hwlogo.jpg" alt="Heriot
Watt Logo"/>
<h1> Welcome </h1>
<p> This is Web Design and Databases </p>
<h2> Introduction</h2>
On this course you'll learn how to create
<em> cool </em> websites and connect
them to a database.
See here for
<a href="labexexercises.html"> Lab
Exercises </a>
</body>
```
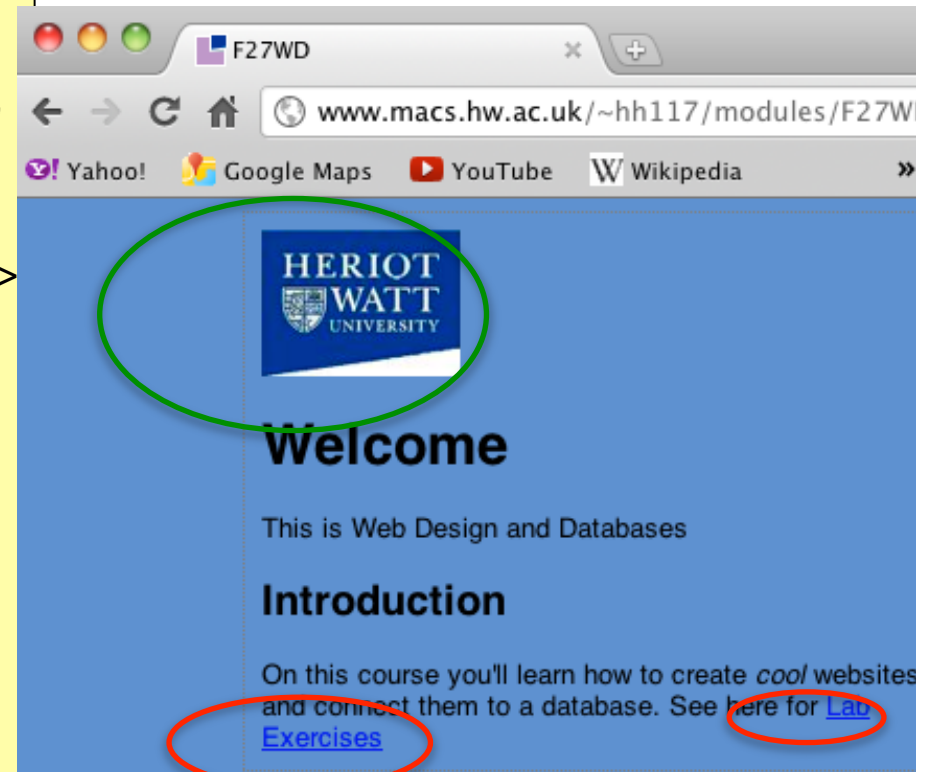
New Elements:
`img  a`

Tags and Elements

- Elements give structure to a HTML document
- They tell the browser how you want your website to be presented
- Generally elements consists of a start tag, some content, and an end HTML tag, e.g. heading size 1

`<h1> My Cool Stuff </h1>`

Empty elements

- Most elements have a start tag, a value, and an end tag
  - E.g. `<h1>My pets</h1>`
- Some elements are empty (no value needed)
  - E.g. the **br** tag (meaning 'break' – take a new line)
  - `<br>`
- Other empty elements are the `<img/>` and `<input/>`

Useful elements, comments.

- Elements that you are likely to find essential include
  - Headings of varying levels
    - h1, h2, h3 etc
  - Paragraph
    - p
  - Unordered Lists
    - ul, li (list item)
  - Ordered Lists (can be numerical or alphabetical)
    - ol, li (list item)
- Comments
  - <!-- This is a comment. -->

The ingredients:

- 100 g. flour
- 10 g. sugar
- 1 cup water
- 2 eggs
- salt, pepper

The procedure:

1. Mix dry ingredients thoroughly.
2. Pour in wet ingredients.
3. Mix for 10 minutes.
4. Bake for one hour at 300 degrees.

Defining hyperlinks
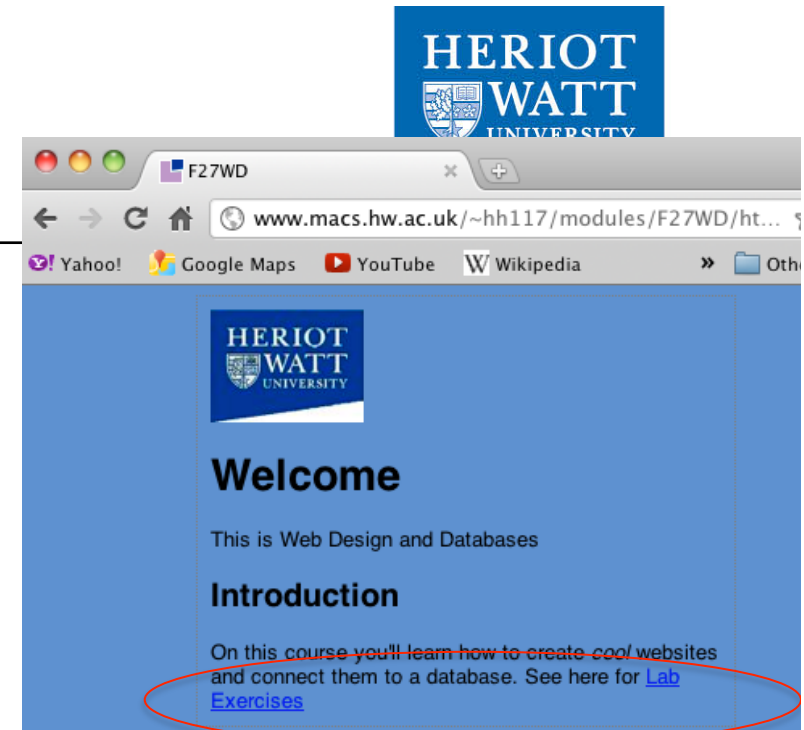
- Link to another page in your folder

     Lab Exercises

- Link to anther URL

     Lab Exercises

Can you see the errors?

```
<body>
<h1>Welcome to the first example<h1>

<p>This is a simple page with a list </p>
<ul>
<li>January   </li>
<li>February   </li>
<li>March   </li>
<li>April   </li>
</ul>
</body>
```

This browser displays it but……
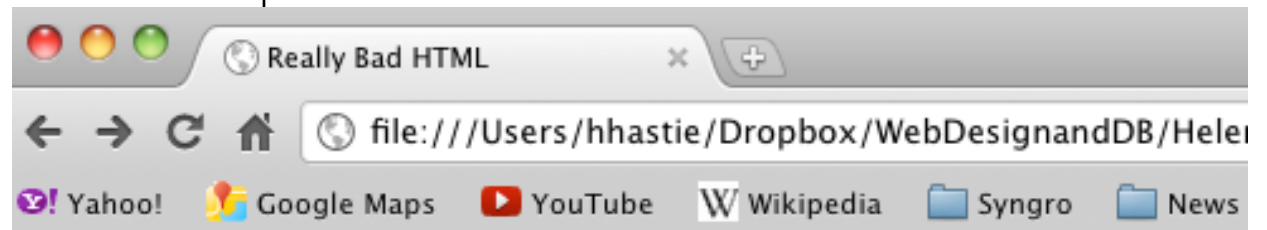
Really Bad HTML

file:///Users/hhastie/Dropbox/WebDesignandDB/Hele

Yahoo!   Google Maps   YouTube   Wikipedia   Syngro   News

Welcome to the first example

This is a simple page with a list

- January
- February
- March
- April

Introduction to XHTML

Elements and Attributes

- Elements can also have attributes, giving additional information

- Example (NOT HTML)

- \<car\> my red mini\</car\>

- \<car make="BMW" model="mini cooper" convertible="no"\>my red car \</car\>

Elements and Attributes

- Attributes have a name and a value
  - The value must be enclosed in double quotes

<img src="images/hwlogo.jpg" alt="Heriot Watt Logo">

 Google

Get the terminology right

Elements are not tags! Don't say the "anchor tag". Although an element can have start and end tags.

Attribute name

Whole structure is an HTML element

`<a href="http://www.google.com" > Google </a>`

HTML element name = anchor

Start anchor tag

Attribute value

End anchor tag
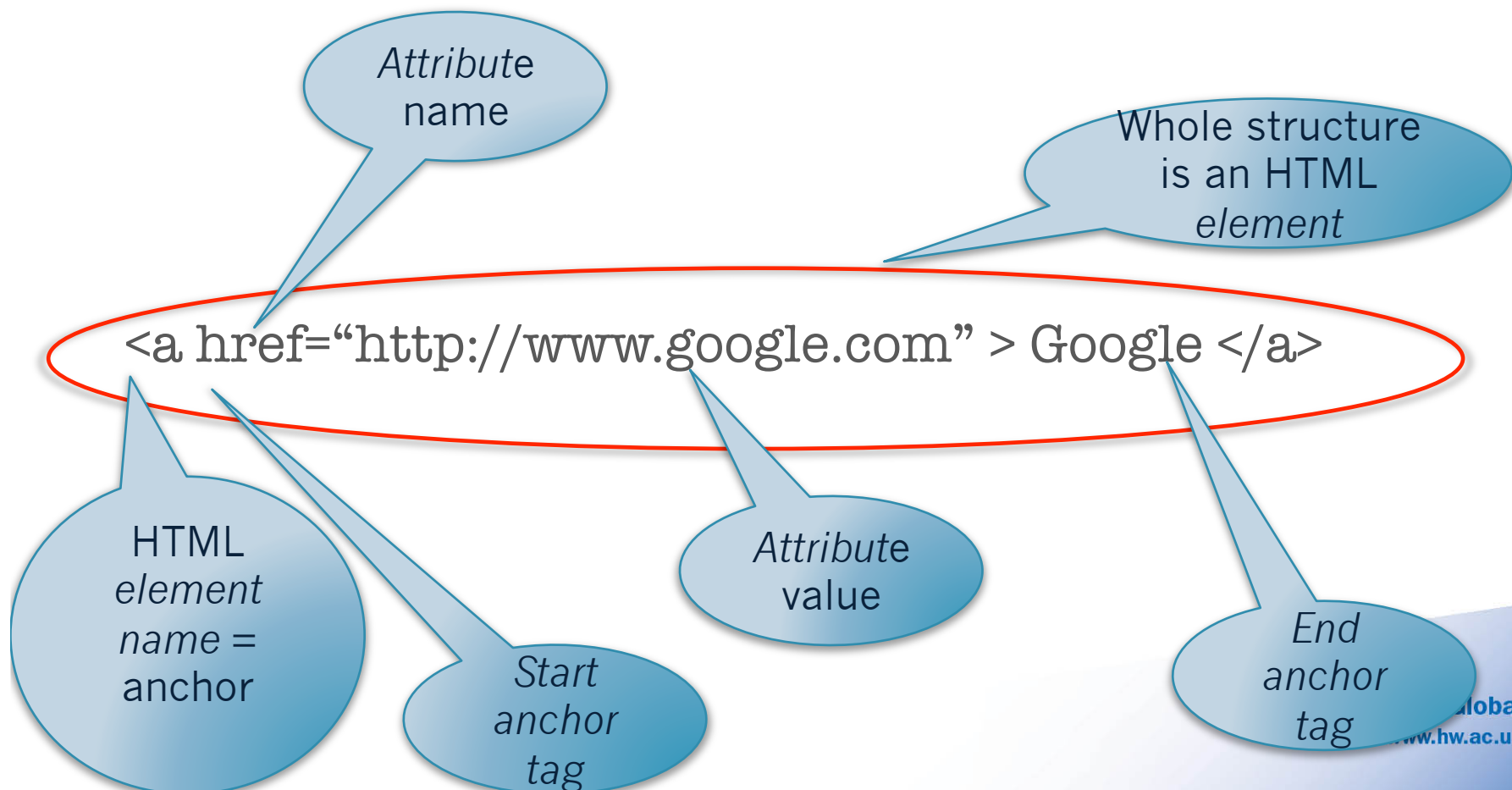
Adding multimedia etc.

- Images and other multimedia elements are easily linked to (not inserted), e.g.,

- src and alt attributes
- img is always an empty element
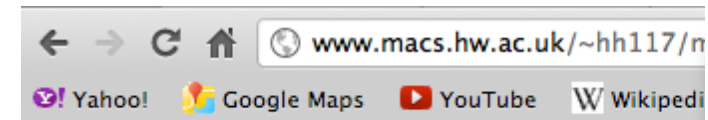
Adding multimedia etc.

- Change the size:
  - `<img src="mypic.jpg" alt="Photo of Donald" width="200" height="150"/>`

Image with a link

```
<body>
<a href="http://www.hw.ac.uk">
 <img src="images/hwlogo.jpg"
alt="heriot-watt logo">
</a>
<h1> Welcome </h1>
<p> This is Web Design and Databases </
p>
<h2> Introduction</h2>
On this course you'll learn how to create
<em> cool </em> websites and connect
them to a database.
```

Welcome

This is Web Design and Databases

Introduction

On this course you'll learn how to create *cool* webs

New Elements:
img a

Thumbnails

- Resize the pictures in Photoshop/Gimp to width=100px and height =150px
- Create link to photo as before
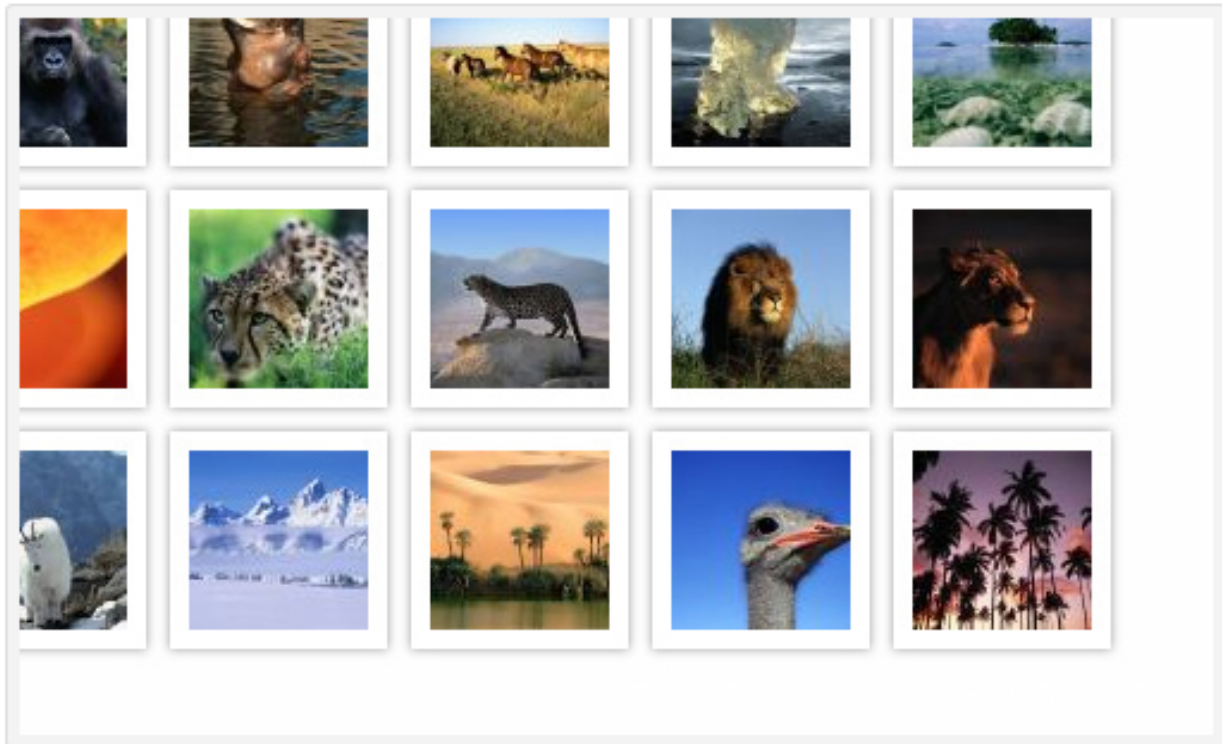
Tables

- Tables are useful for displaying tabular information on the web such as results of a study

Table name										
	col 01	col 02	col 03	col 04	col 05	col 06	col 07	col 08	col 09	col 10
ROW 1	1.0	11.0	21.0	31.0	41.0	51.0	61.0	71.0	81.0	91.0
ROW 2	2.0	12.0	22.0	32.0	42.0	52.0	62.0	72.0	82.0	92.0
ROW 3	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0	83.0	93.0
ROW 4	4.0	14.0	24.0	34.0	44.0	54.0	64.0	74.0	84.0	94.0
ROW 5	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0	95.0
ROW 6	6.0	16.0	26.0	36.0	46.0	56.0	66.0	76.0	86.0	96.0
ROW 7	7.0	17.0	27.0	37.0	47.0	57.0	67.0	77.0	87.0	97.0
ROW 8	8.0	18.0	28.0	38.0	48.0	58.0	68.0	78.0	88.0	98.0
ROW 9	9.0	19.0	29.0	39.0	49.0	59.0	69.0	79.0	89.0	99.0
ROW 10	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0

In the old days….

- Before we had better techniques- tables were used for laying out websites
- Highly discouraged now…
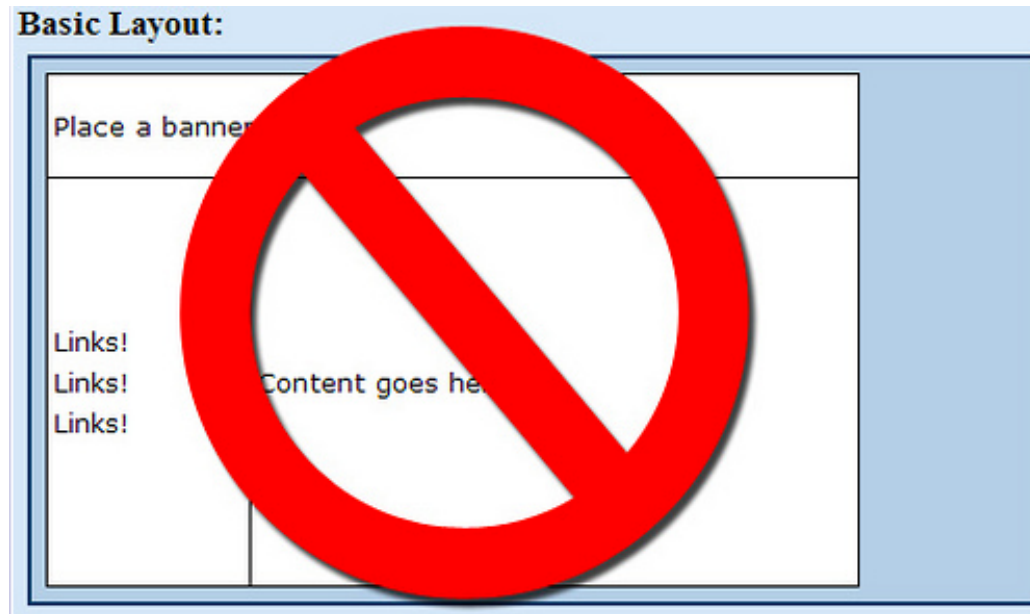
- We'll discuss how to do this properly later on

The Table Element

- The TABLE element contains all the elements that make up a table - the header, rows, and columns. This example shows a table of monthly savings.

```
<table>     table tag
<caption>  optional table title
<tr>        table row
<th>        table column header
<td>        table data element
```

Tables

```
<table>
 <tr>
  <th>Firstname</th>
  <th>Lastname</th>
 </tr>
 <tr>
  <td>John</td>
  <td>Jones</td>
 </tr>
 <tr>
  <td>Mary</td>
  <td>Evans</td>
 </tr>
</table>
```

Firstname	Lastname
John	Jones
Mary	Evans

Change look and feel using CSS

Let's add a caption

```
<table>
 <caption>My first table </caption>
 <tr>
   <th>Firstname</th>
   <th>Lastname</th>
 </tr>
 <tr>
   <td>John</td>
   <td>Jones</td>
 </tr>
 <tr>
   <td>Mary</td>
   <td>Evans</td>
 </tr>
```

My first table

Firstname	Lastname
John	Jones
Mary	Evans

Now you try

My second table

Pet	Name	Owner
Labrador	Rocky	Jessica
Rotweiller	Tickles	Jim

Now you try

```
<table>
 <caption>My second table </caption>
  <tr>
    <th>Pet</th>
    <th>Name</th>
    <th>Owner</th>
  </tr>
  <tr>
    <td>Labrador</td>
    <td>Rocky</td>
    <td>Jessica </td>
  </tr>
  <tr>
    <td>Rotweiller</td>
    <td>Tickles</td>
<td>Jim </td>
  </tr>
</table>
```
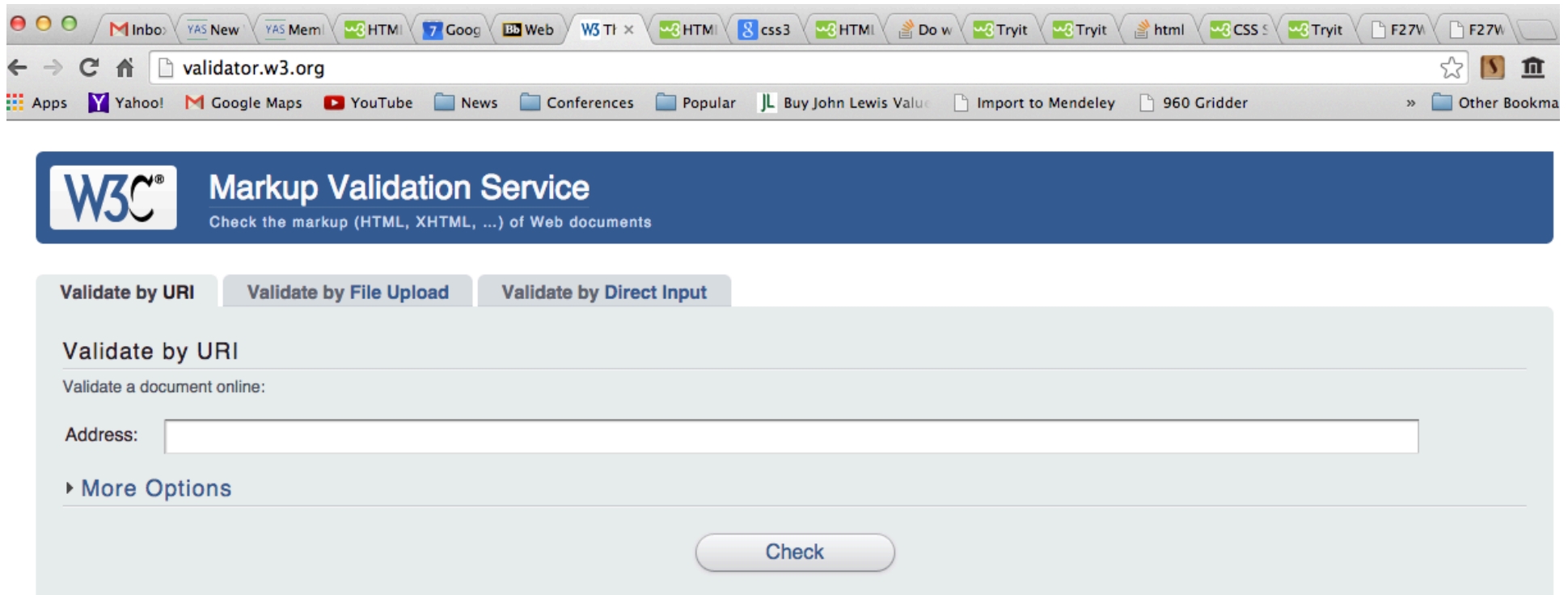
My second table

Pet	Name	Owner
Labrador	Rocky	Jessica
Rotweiller	Tickles	Jim

Current HTML5 validation forms are "Experimental"

W3C® Link Checker

Check links and anchors in Web pages or full Web sites

Enter the address (URL) of a document that you would like to check:

More Options

- ☐ Summary only
- ☐ Hide redirects: ⦿ all ○ for directories only
- ☐ Don't send the Accept-Language header
- ☐ Don't send the Referer header
- ☐ Check linked documents recursively, recursion depth:

- ☐ Save options in a cookie

Conclusion

- It's easy to create Web pages with WYSIWYG, but it's important to understand basis of HTML, and ideally start authoring "by hand" using text editors.

- Pages that work in your browser may not work in someone else's! so….

- Try to write clean code

- http://www.w3schools.com/

Next Time

- More on CSS and adding Style

- More on Tables/Forms

- Don't forget to submit your assignment.
  Friday of week 2 (This week!)